Snowmelt and Rivers Overload Williston with Biters

Air Force Rescues North Dakota Town

No one ever called Meriwether Lewis or William Clark a "wimp." On their 1804 -06 Corps of Discovery, they endured blizzards, treacherous mountains, unfriendly Native Americans and near-death trauma on river and land. But when they came to what is now known as Williston, N.D., even they made mention of "troublesome mosquitoes."

The culprit is geography. Williston lies where the Yellowstone River and Missouri River converge. East of town, the Little Muddy joins in. The result is a flood plain five miles wide, an 80,000-acre wildlife refuge, and prime mosquito habitat.

Excellence in Service

To control Williston's overwhelming annual crop of mosquitoes, the Air Force flies a C-130 especially equipped with industrial strength spray systems, on-board GPS systems that line up spray swaths and on-board weather data.

Photo: Jeff Keller

"I've been all over the world, but the mosquitoes in Williston are right up there with the worst. They are truly epic," says U.S. Air Force Lieutenant Colonel Mark Breidenbaugh, an entomologist. "In 2008, light trap counts in the range of 24,000 adults a night weren't unusual. We're not talking about just swatting mosquitoes; it's more about inhaling or ingesting them.

"Per capita, people living in the Dakotas are at a greater risk of West Nile virus (WNV) than other places in the U.S.," he adds. "From 1999 to 2009, the Dakotas had 3-16 percent of the cases of WNV in the U.S., but the population is .05 percent of the U.S."

Mosquito overload is the unenviable position Fran Bosch found himself in when he took the job as director of the Williston Area Vector Control District in 2008. "The public had a low opinion of our department," Bosch recalls. "We were overwhelmed. Then, in late June of '08, the North Dakota Game, Fish and Parks Department said there was an opportunity to work with the Air Force on mosquito control. I ran with it."

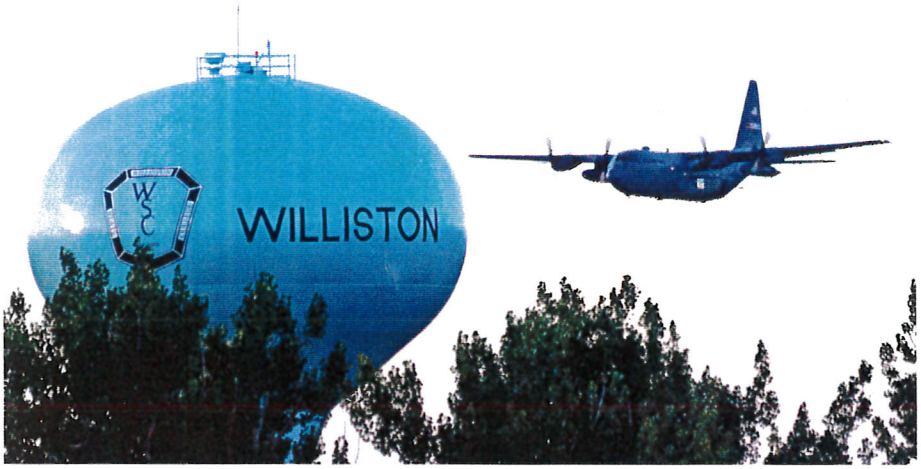
Bosch met with the mayor of Williston and the county commissioners, and also Jeff Keller of the U.S. Army Corps of Engineers, since the river bottomland is owned by the Corps. They all approved a trial run with the Air Force, although Bosch spent much of that winter writing an environmental assessment to assure the Corps of Engineers, as the lead federal agency, that it was safe to spray federal lands.

The primary target was, and is, the *Aedes vexans* mosquito. It lays eggs that lie dormant and then hatch when snowmelt floods the wetlands around Williston. In that area, the first hatch normally occurs in May, but more eggs hatch every time the water level changes.

"In May of '09, the Air Force sprayed with one C-130. What a difference it made. It was immediate," says Bosch. "They showed up five days after the flood waters showed up. The water was black with larvae."

Every year since, the Air Force—more specifically the Air Force Reserve 757 Airlift Squadron of the 910th Airlift Wing—has come through for Williston with an aerial larvicide program.

In 2012, legal issues threatened the program, notes Bosch. To keep it, Bosch enrolled Williston in the federal program called Innovative Readiness Training, a sign-up fraught with paperwork. "I saw forms I've never seen," says Bosch.



Welcome to Williston

Caught up in an oil boom, Williston has 25,000 full and part-time residents, and another 30,000 people work in the area. Containing the threat of mosquito-borne disease such as West Nile virus is a priority.

Photo: Jeff Keller

"We had overwhelming support from the community and community and state leaders. U.S. Senator John Hoeven even joined in to help. This is not a program we want to lose. The only way we can cover that much area is with the Air Force. We could never afford to hire private contractors to do all of it," says Bosch.

"The community perspective is something. In November of 2008, in hopes we could get the Air Force to spray, they actually doubled my budget. That made the program possible. We haven't lost that support," he notes. "It isn't just because the Air Force has big planes. It is their technical expertise and professionalism."

The Air Force also benefits from the program. "We're getting training," says Breidenbaugh. "On each flight there is a full crew with pilots, navigators and loadmasters. We have to train every six months to stay current. That's why we got involved, so if and when we are called to do military duty, we are ready to go. If we weren't involved in mosquito control, we'd be spraying water."

Breidenbaugh assigns much of the credit to cooperating agencies. The Army Corps of Engineers, the Air Force and the Williston Area Vector Control District work together on program expenses. And he notes, "Fran Bosch is an innovator and all of the agencies have expertise that has been put in the pot. The program has been very successful."

"In 2008, it looked hopeless," says Bosch. "But, with help from the Air Force, the public's opinion of our department has taken a 180-degree turn. Daily averages for light trap counts in 2013 were 60 to 70, a far cry from 24,000-and-up per trap in 2008. It has been a real privilege to work with the Air Force Reserve and our community." ■

Ripples of Reproduction Too much water provides ample opportunities for mosquitoes to lay wave after wave of eggs near Williston, N.D.

Photo: North Dakota Department of Parks and Recreation